

A closer look at RMZ implementation in Minnesota

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Minnesota's voluntary forest management guidelines are a set of best practices designed to mitigate impacts to forest resources during forest management activities such as timber harvesting. A primary emphasis of the guidelines is on water, with a key objective to minimize impacts to water quality. Central to achieving this objective is the management of areas adjacent to streams and lakes where the risk of water quality impacts is greatest. These areas, commonly referred to as Riparian Management Zones (RMZs), serve as buffers along streams and lakes and help to maintain the high quality of water that forests provide. Related guidelines generally require trees to be retained in the RMZ during harvesting, with the RMZ width (and area) dependent on size and other characteristics of the stream, lake, or open water wetland. Our current [guidelines](#) recommend widths ranging from 50 feet for small streams to 165 feet for trout lakes.

The MN Department of Natural Resources has monitored and [reported](#) on guideline implementation, including implementation of RMZ guidelines, since 2000 on over 1161 timber harvest sites across the state. Assessment over the first decade of monitoring consistently showed that only about half of the sites had RMZ guidelines implemented when needed (Figure 1). This level of implementation was low relative to nationwide trends (Ice et al. 2010), and was concerning because it could indicate that water quality was being impacted by forestry activities in the state. Since then, there have been noticeable improvements in RMZ implementation.

However, these levels are still lower than national trends and of continued interest because of the large focus on water quality within Minnesota. There

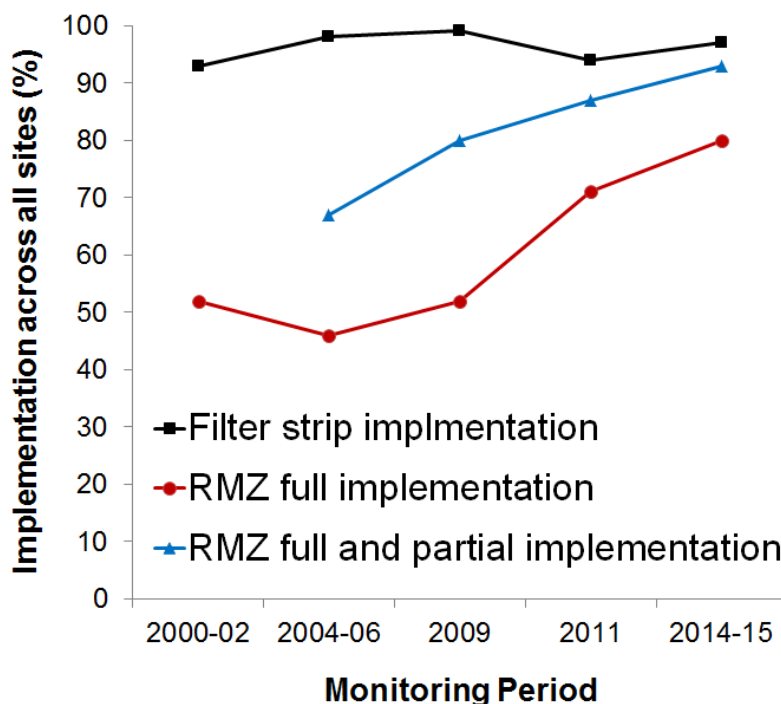


Figure 1. Full and partial implementation of Riparian Management Zone (RMZ) guidelines over time. Full implementation is for harvest sites where minimum width and residual basal area requirements were met. Partial implementation is for those sites where at least 50% of the recommended RMZ width was achieved.

are a variety of reasons why RMZ guidelines may not be implemented on a site-by-site basis. The statewide estimates were inconsistent with anecdotal perceptions from the field and conflicted with established policies and frameworks that effectively make the guidelines mandatory for many landowners. Why?

In 2013, the MN Forest Resources Council conducted an assessment of guideline implementation to determine if levels were sufficient for sustainable management of forest resources in Minnesota. Detailed evaluation of the field monitoring data was conducted including a critical look at sites where RMZ guidelines were not implemented. Somewhat surprisingly, we found that at many of those non-compliant sites some effort was made to implement RMZ guidelines, but that RMZ widths were narrower than recommended for “full” implementation. This contrasted with a common perception that non-compliant sites had all trees cut to the water’s edge. When accounting for this “partial” implementation (weighted based on degree of compliance with recommended width), we found that implementation levels were actually 15-20% higher than previously estimated (Figure 1), with the most recent estimates in-line with national trends (NASF 2015).

MN DNR now accounts for partial implementation to provide a more realistic picture of conditions in the field. In addition, the monitoring program was recently modified to provide estimates of guideline implementation at the watershed scale to inform watershed-planning efforts. This new approach has shed more light on RMZ implementation across the state. Notably, the DNR found that when accounting for partial implementation, all sites implemented RMZ guidelines to some degree across the state, with the exception of one watershed that had very low implementation (Table 1). This finding is important because it shows that in most areas of the state RMZ guidelines are being used, and allows us to more effectively target efforts at improving RMZ implementation to watersheds that need it.

Table 1. Full and partial implementation of Riparian Management Zone (RMZ) guidelines by watershed sample unit monitored between 2014-15. Taken from Rossman et al. 2016.

Watershed unit	Number of RMZs	Fully compliant (%)	Fully and partially compliant (%)
Mississippi Headwaters	12	100	100
Superior North and South	17	88	100
Rum River	7	14	28
Mississippi Grand Rapids	14	86	100
Vermillion / Rainy Rivers	17	76	100
Red Lake, Clearwater, Wild Rice River	4	100	100
Total	71	80	93

Clearly, RMZ implementation has improved over time and is much higher than previously thought. However, we can always work to improve management of our forest resources in a sustainable manner, including higher and more effective RMZ implementation across the

state. Understanding the factors that lead to low implementation in some watersheds, and determining the effectiveness of partial RMZ implementation at maintaining water quality are key questions that remain. Resolving them will help to ensure that Minnesota's working forests continue to provide an abundant and high quality supply of water.